DEQ-R SERIES

DEQ-8R

DEQ-10R

DEQ-12R

DEQ-15R

USER'S MANUAL

Remote Controlled Home Theater Subwoofers

Velodyne

IMPORTANT SAFETY INSTRUCTIONS

Caution

To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

The lightning flash with arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the subwoofer.

1. **Read Instructions** — All safety and operating instructions should be read before the product is operated.
2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** — All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Water and Moisture** — The product should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool or the like.
6. **Carts and Stands** — The product should be used only with a cart or stand recommended by the manufacturer.
7. **Wall or Ceiling Mounting** — The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** — The product should be situated so that its location or position does not interfere with its proper ventilation. For example, the product should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products that produce heat.
10. **Power Sources** — The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
11. **Grounding or Polarization** — This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
12. **Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point at which they exit from the product.
13. **Cleaning** — The product should be cleaned only as recommended by the manufacturer.
14. **Nonuse Periods** — The power cord of the product should be unplugged from the outlet when left unused for a long period of time.
15. **Object and Liquid Entry** — Care should be taken so that objects do not fall and liquids are not spilled onto the enclosure.
16. **Damage Requiring Service** — The product should be serviced by qualified service personnel when:
    a. The power-supply cord or plug has been damaged.
    b. Objects have fallen or liquid has been spilled into the product.
    c. The product has been exposed to rain.
    d. The product does not appear to operate normally or exhibits a marked change in performance.
    e. The product has been dropped or damaged.
17. **Servicing** — The user should not attempt to service the product beyond what is described in the operating instructions. All other servicing should be referred to qualified service personnel.
18. **Lightning** — For added protection for the product during a lightning storm or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.
19. **Overloading** — Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.
20. **Attachments** — Only use attachments and accessories specified by the manufacturer.
21. **Voltage** — Insure that the subwoofer is only connected to the rated source voltage. Do not connect the 120-volt version to 230-volts or vice-versa. This will result in damage to the subwoofer and possible injury to the user.

CAUTION: To prevent electrical shock, match wide blade of plug to wide slot, fully inserted.

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Congratulations!

Congratulations on your purchase of a Velodyne Digital Equalization Remote (DEQ-R) subwoofer. This system represents the state-of-the-art in low frequency reproduction. Read and follow the instructions below to ensure safe and proper system operation.

Note: Do not leave unit in direct sunlight or use in high humidity environments!!!

Warning!
To prevent fire or shock hazard, do not expose this product to rain or moisture. To avoid electrical shock, do not open the speaker enclosure or amp chassis cover. Please observe all warnings on the equipment itself. There are no user serviceable parts inside. Please refer all service questions to your authorized Velodyne dealer.

Prior to Installation:
Please unpack the system carefully. Use caution when lifting or moving to avoid injury. Please save the carton and all packaging materials for future use. Record the serial number in the space provided on page 19 for future reference.

Product Features
- DSP-controlled
- Front mounted 8-segment LED display
- One-touch, 5-band graphic equalizer with microphone included
- 4 selectable presets for customized listening mode
- Night-mode setting
- Mute control
- Built-in 180 watt (RMS) power amplifier (DEQ-8R)
- Built-in 195 watt (RMS) power amplifier (DEQ-10R)
- Built-in 225 watt (RMS) power amplifier (DEQ-12R)
- Built-in 750 watt (RMS) power amplifier (DEQ-15R)
- Adjustable (40 to 120 Hz) low-pass crossover with Subwoofer Direct setting
- Speaker-level inputs
- Line-level inputs
- Signal sensing auto turn on/off with bypass option
- Variable volume control with digital LED readout
- Selectable phase control (0, 90, 180, or 270 degrees)
- Dual staggered low-pass crossover; 12 dB/octave initial, 24 dB/octave ultimate
- Anti-clipping circuit
- Over excursion protection
- Slot loaded bass reflex design

Prepare for Installation

Your new Velodyne subwoofer provides for a number of installation options. Read all of the installation information below in order to determine which installation option is best for your system. ***Remember to perform all installation procedures with system power turned off to prevent possible damage.***

Placement

The first step in installing your new DEQ-R sub is to determine where it will be placed in the room. Unpack the system carefully and use the following guidelines in order to find the best room placement option.

True subwoofers operate at extremely low frequencies which are primarily omni-directional. Keep in mind that frequency response and output level can be drastically influenced by placement, depending on the acoustic properties of the listening room. To obtain optimum output from your subwoofer, try placing it within a foot of a corner. This location will offer the greatest output levels and optimum low frequency extension. If at all possible, your subwoofer should be placed along a wall. The worst location for a subwoofer is typically far away from any walls and close to the center of your room. Avoid these locations when possible. When using a pair of Velodyne subwoofers in stereo, it is preferable to feed each subwoofer with one channel and place each subwoofer near the satellite of the same channel.

Depending on the size and type of furnishings in the room, perfect placement may not be possible. Finding the best location within your environment will likely require some experimentation. We suggest you experiment with the location during setup to find what sounds best to you when seated in your typical listening position.

Regardless of where you install your Velodyne subwoofer, it must remain in an upright position (woofer facing forward). Using, shipping or storing the subwoofer in any other position for an extended period of time may result in damage to the unit not covered by warranty.

Caution!

This subwoofer has electronics built into the cabinet. Do not place the cabinet next to sources of heat such as furnace registers, radiators, etc. Do not place the unit near sources of excessive moisture such as evaporative coolers, humidifiers, etc. The power cord should be routed in such a way that it will not be walked on, pinched or compressed in any way that could result in damage to the insulation or wire.

Your Velodyne DEQ-R subwoofer is NOT magnetically shielded. Should you find it necessary to use it with an older CRT monitor or TV, keep it at least two feet from the monitor. Experiment for correct distance by minimizing distortion of the picture and colors.

Installation

Inputs

Your new subwoofer is equipped with speaker-level and line-level inputs. Use the LINE LEVEL jacks when connecting your subwoofer to a pre-amp, signal processor (such as LFE out), line-level crossover, or receiver with pre-amp level outputs. When using the line level jacks, some receivers may not provide enough signal to have the unit's auto-on feature operate properly. Additionally, this lack of signal may also cause the subwoofer to produce less output than it is capable of.

To alleviate this condition, we recommend the following steps:

1) If using line level jacks, BOTH THE LEFT AND RIGHT INPUT SHOULD ALWAYS BE USED – never use just the left or just the right input. If using line level connections from a preamp or signal processor, use both Left and Right inputs from your preprocessor or preamp and connect them to the Left and Right inputs on your subwoofer. (See figure 4 on page 10.)

2) If using a receiver with LFE out, be sure the LFE channel is sending adequate signal to the subwoofer. The subwoofer's default volume setting is 30 on a 1-80 scale (roughly 1/3 volume). Adjust the LFE channel on your receiver or processor to achieve the desired bass output. See your receiver or processor's owner's manual for more information. (See figure 5 on page 11.)

Volume Control

This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar output levels from both the main speakers and subwoofer when listening to music. The default volume setting is 30 on a 1-80 scale.

Warning:

Some manufacturers preset their receivers with the Sub-Out channel signal at a minimum level. It is very important to verify that your receiver Sub-Out channel is set to the same output level as your front right and left channels. Refer to your receiver manual for the individual channel level adjustment procedure. If your receiver Sub-Out channel is set too low, the subwoofer may appear to have a weak output, it may sound noisy or distorted, and the Auto On/Off feature may not operate properly.

Low-pass Crossover - 40 to 120 Hz

All inputs sum the left and right channels together, with the resulting signal passing through an adjustable low-pass crossover before being amplified. The crossover control allows you to adjust the upper limit of the subwoofer's frequency response from 40 to 120 Hz. The subwoofer's response will begin rolling off above the frequency you set this control to. You should set the crossover frequency to obtain a smooth and seamless transition from the subwoofer to the main speakers in your system. If your main speakers are smaller with limited low frequency output, you may wish to choose a higher frequency (such as 100 - 120 Hz) than you would with larger speakers which have greater low frequency output. The default crossover setting is 80 Hz. With larger speakers, you may want to set this even lower, for example 70 Hz.

Phase Adjustment - 0°/90°/180°/270°

This control allows you to change the phase of the subwoofer's output signal to correct for any possible mismatch and resulting cancellation between the subwoofer and your main speakers/amplifier. To adjust, simply listen to the system with music playing, then depress the various phase switches on the remote control and listen for a change in mid-bass frequency output. The correct position will have a greater amount of apparent mid-bass frequency output. If the settings sound similar, we recommend the "0" position. See the remote control section for more information.

Auto Turn on Function

The subwoofer will turn itself on automatically when an audio signal is present. If no signal is present for approximately eight minutes, the unit will switch to standby mode (blank LED). While in standby mode, your subwoofer will draw very minimal power. Your sub is shipped in the "Always On" position. In order to activate the circuit, change the switch to "Stand-by".

Warning:

If the Sub-Out channel signal level from your receiver is too weak, this feature will not operate properly and shut the subwoofer off while you are listening to it. To correct this, see the VOLUME CONTROL section on previous page.

Front Panel

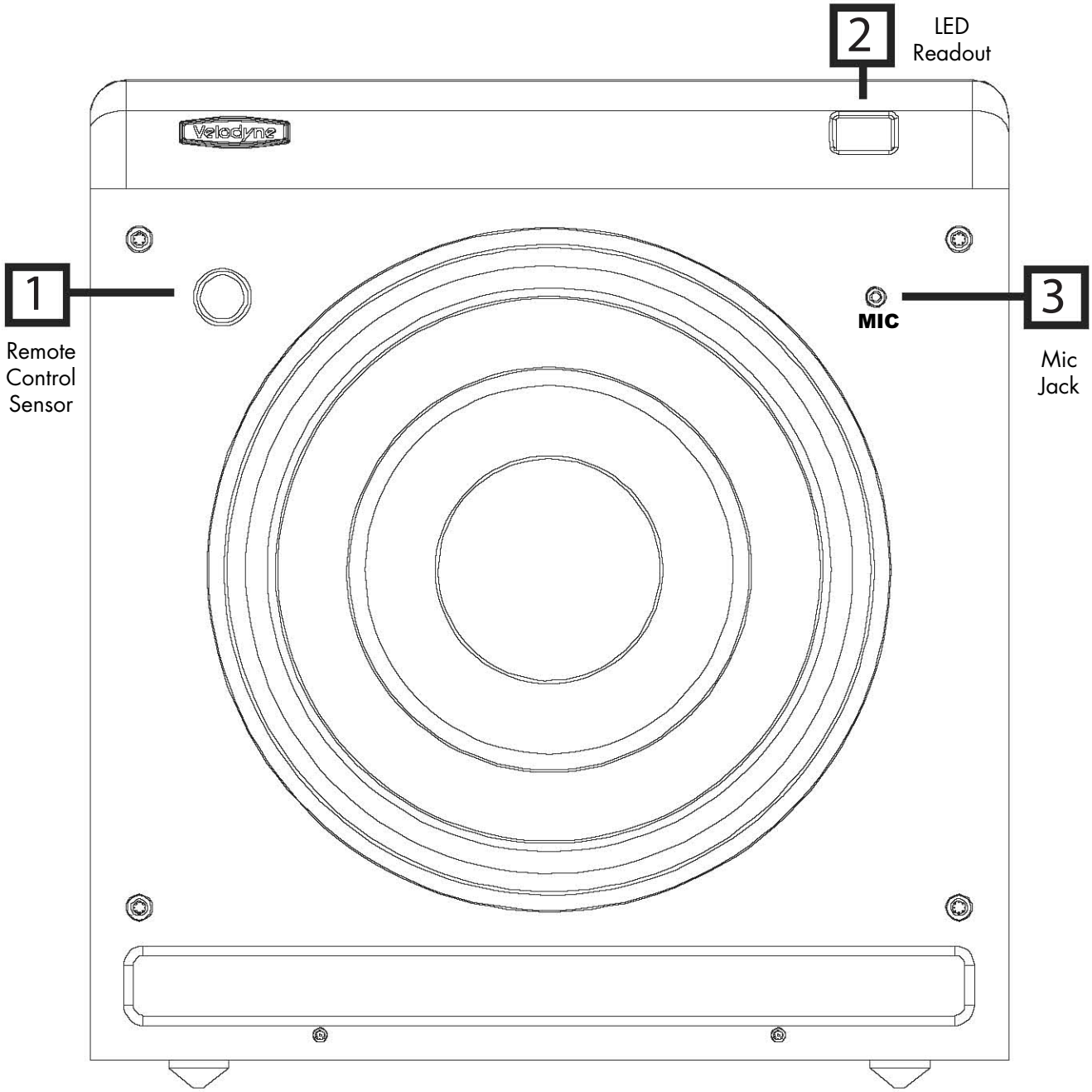

Figure 1. DEQ-R Front Panel

Following are brief descriptions of the controls and connections described in Figure 1.

(1) **REMOTE CONTROL SENSOR**
IR sensor window receives a signal from the included remote control.

(2) **LED READOUT**
2.5 digit, eight segment LED readout displays volume, phase and Auto-EQ.

(3) **MIC JACK**
Connector for the supplied microphone to use during the Auto-EQ process.

Rear Panel Connections

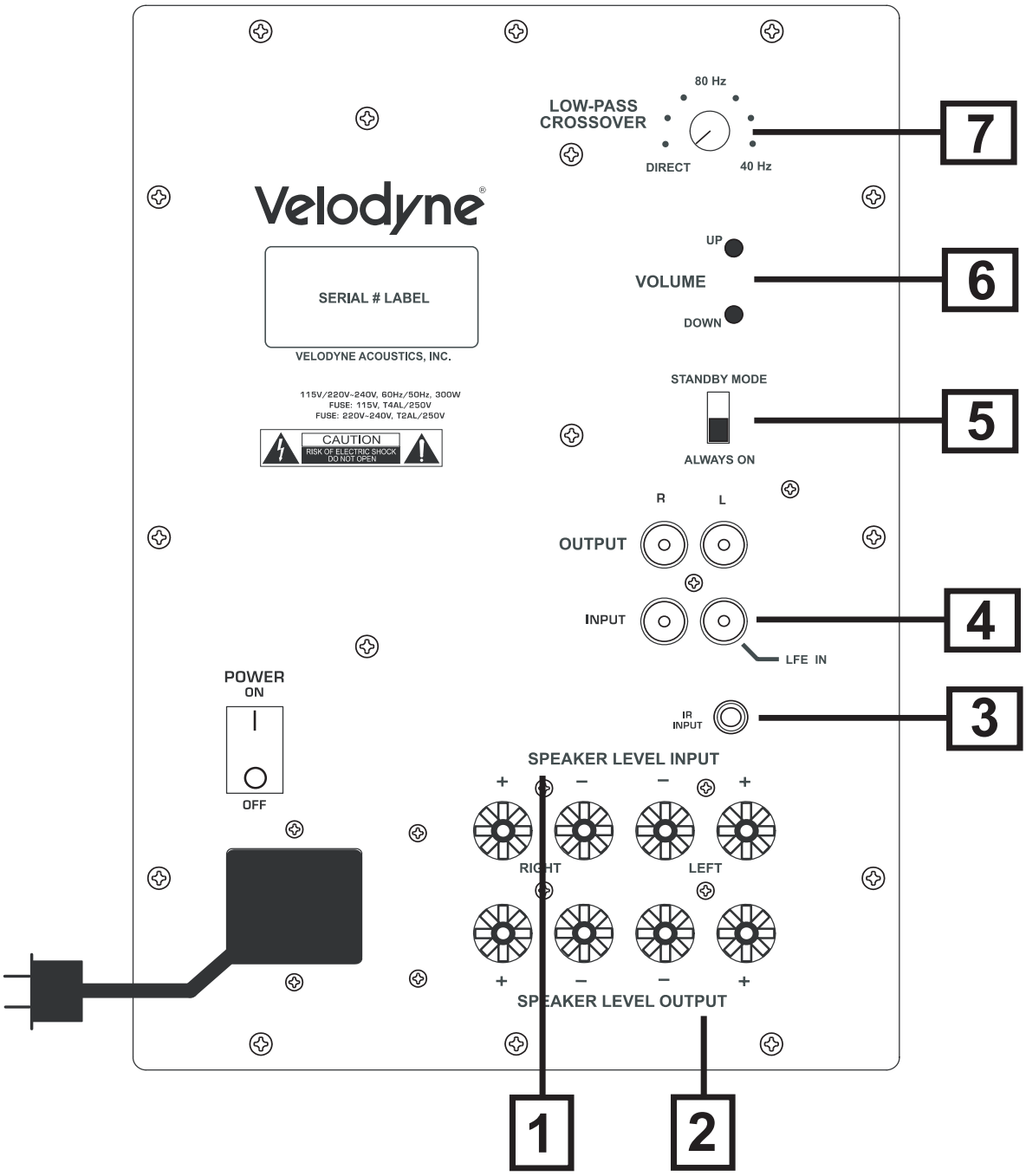

Figure 2. DEQ-8R, DEQ-10R, and DEQ-12R Rear Panel Connections

Figure 2 shows the controls and connections on the rear panel of the DEQ-8R, DEQ-10R, and DEQ-12R.

Following are brief descriptions of the controls and connections described in Figures 2 and 4 and 5. More detail of these connections can be found below:

(1) **SPEAKER LEVEL INPUT** Terminals
Connect these input terminals to the speaker output terminals of your amplifier or

receiver. If you use this method of connection, when you go to the receiver speaker set up menu, make sure you select the large speaker option.

(2) **SPEAKER LEVEL OUTPUT** Terminals
Sends a crossed-over speaker-level signal to the front speakers. See below for a more detailed explanation of this crossover.

(3) **IR INPUT**
This is a connection that allows the utilization of a third party infrared remote sensor, such as Elan or Xantech, or an extended cable for placement closer to your other remote controlled equipment. This keeps you from awkward control angles using the infrared remote control.

(4) **LINE OUTPUT**
Connect these jacks to the LINE IN preamp input to use the DEQ-R's internal high pass crossover. The signal fed from these connectors is rolled off below 120 Hz.

LINE INPUT/LFE
Connect these jacks to the LINE OUT preamp output, LFE output, or subwoofer output jacks of your receiver/processor. If using the LFE output from your receiver or processor, plug the single cable into the "L" – LFE input or, for more signal, use a "Y" connector (not included) and feed the signal into both "R" and "L" inputs.

(5) **AUTO ON/OFF Switch**
Use this switch to select between "stand-by" mode (woofer shuts off after eight minutes) and "always on" operation.

(6) **VOLUME Control**
This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar volume level from between both the main speakers and subwoofer. When pressing volume up or down, set the level while watching the LED display for reference.

Note: Volume is also controllable by using the supplied remote. When defaults are restored, the default is 30 out of 80.

(7) **LOW-PASS CROSSOVER**
Use this knob to select the frequency above which you wish to cut off the signal to the subwoofer. When the knob is turned all the way to the left, the Subwoofer Direct feature is invoked and the subwoofer plays all frequencies up to 120 Hz.

Rear Panel Connections — Detailed Explanation

Your new subwoofer is equipped with both speaker-level and line-level inputs. Use the RCA/Phono type "INPUT" jacks when connecting your subwoofer to a pre-amp, signal processor, or line-level crossover. The "SPEAKER LEVEL INPUT" jacks connect directly to the speaker outputs of an integrated amplifier or receiver. Your amplifier section will notice no additional loading effects when you use these inputs because of their high impedance.

Note:
Do not use both the RCA/Phono "INPUT" connections and "SPEAKER LEVEL INPUT" connections simultaneously.

Low-Pass Crossover

Both sets of inputs sum the left and right channels together and the resulting signal is passed through an adjustable low-pass crossover before being amplified. The crossover control allows you to adjust the upper limit of the subwoofer's frequency response from 40 to 120 Hz. The subwoofer's response will begin rolling off above the frequency you set this control to.

You should set the crossover frequency to obtain a smooth and seamless transition from the subwoofer to the main speakers in your system. If your main speakers are smaller units with limited low frequency output, you may wish to choose a higher frequency (such as 100-120 Hz) than you would with larger speakers which have greater low frequency output. With larger speakers, you might start with this control set lower, such as 70 Hz.

Subwoofer Direct

Subwoofer Direct is a setting on the low-pass crossover knob and will allow frequencies up to 120 Hz into the subwoofer. See below for a more detailed explanation of this feature.

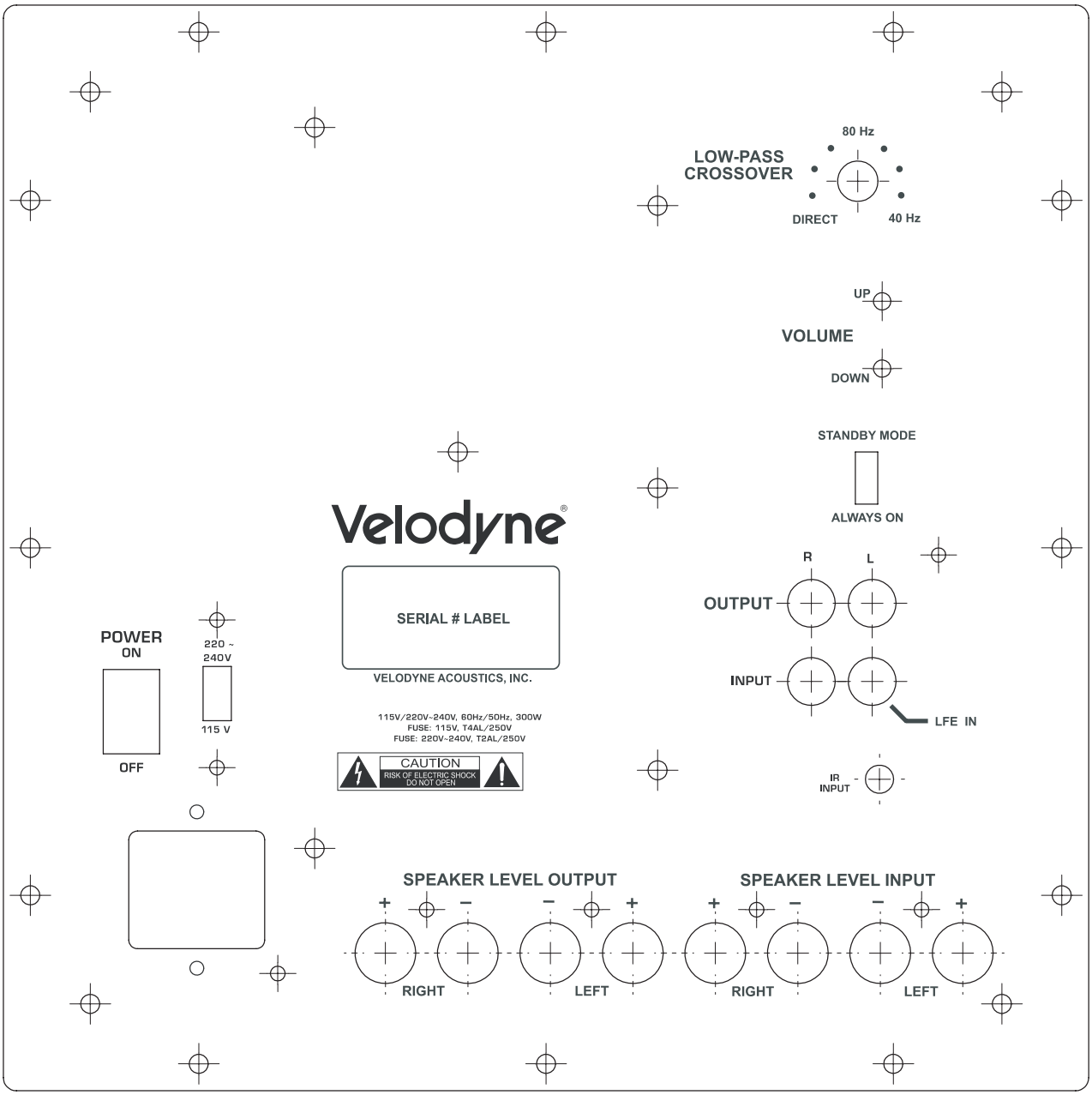

Figure 3. DEQ-15R Rear Panel Connections

Receiver/Processor Subwoofer Outputs

The Velodyne subwoofer is designed to operate using the full range audio signal for input when using the built-in crossover. Many home theater processors/receivers (Dolby Digital™, DTS™, THX™) have a "subwoofer out" jack (sometimes labeled "LFE") that is internally filtered, settable at the receiver/processor, and designed to be used with a powered subwoofer. In some installations, it may be beneficial to use BOTH the Velodyne crossover and the receiver/processor crossover, resulting in a steeper ultimate crossover slope. In some rare cases, combining both an external crossover and the one internal to the subwoofer may result in low output and increased noise. In these installations you may need to bypass the crossover in either the processor or your DEQ-R subwoofer, or simply setting one crossover to a higher frequency (such as 120 Hz) will restore maximum performance.

(Refer to Figure 4 Line-Level Subwoofer Connection Diagram and Figure 5 Speaker-Level Subwoofer Connection Diagram, pages 10 and 11 for connection diagrams.)

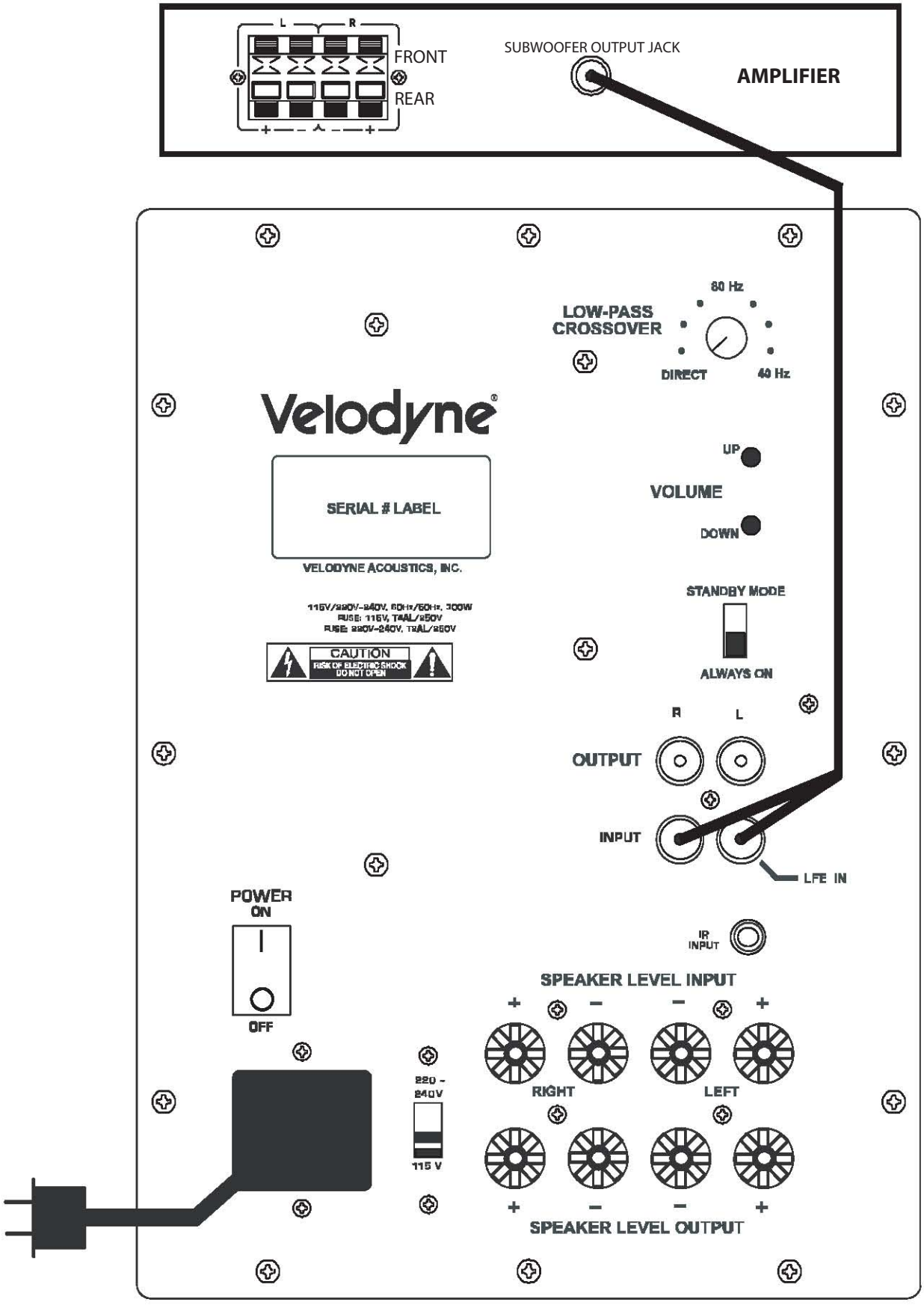

Figure 4. Line-Level Subwoofer Connection Diagram

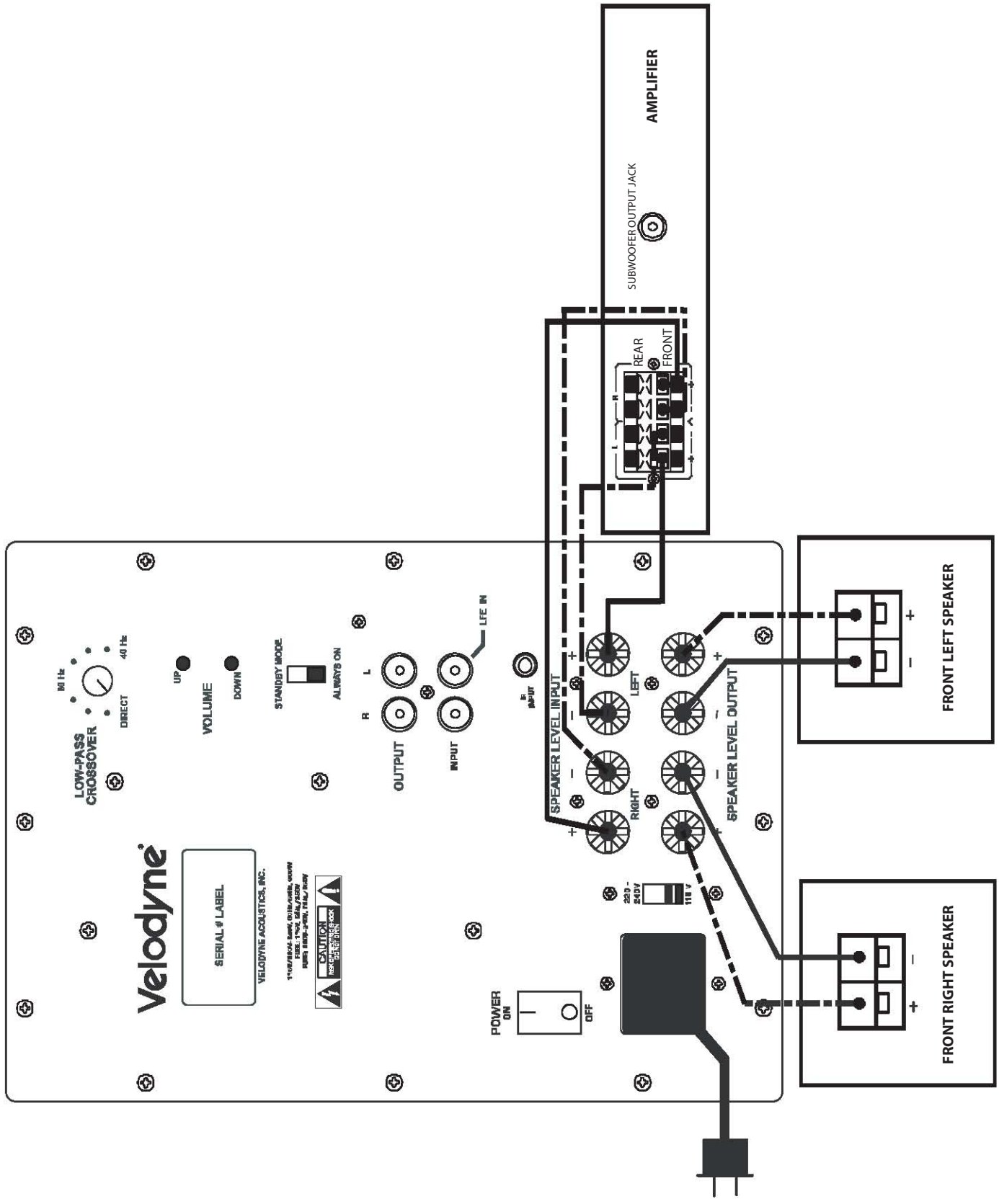

Figure 5. Speaker-Level Subwoofer Connection Diagram

Interconnect Cables

When installing your new Velodyne subwoofer using the line level connections, you should always use shielded phono cables. There are many high quality cables available today. It is recommended that you keep the length of cable as short as possible to avoid any potential noise problems.

When using speaker level connections, use a high quality speaker cable that mates well with the connectors. Be very careful to avoid any loose strands or frayed wires that may result in a short, which may damage your equipment. Cables of extremely large size are not required due to the low current draw of this type of connection. Extremely large gauge wire may not properly fit in the terminals, resulting in a poor connection and possible short circuits.

Usage

This section addresses usage of your DEQ-R subwoofer.

Remote Control

The features of the DEQ-R remote control are listed below.

NOTE: The DEQ-R remote can be attached magnetically to the back of the subwoofer in the upper left hand corner.

Figure 6: DEQ-R Remote.

- **POWER —** This button forces your DEQ-R subwoofer unit into standby mode. The woofer will not play and the LED will turn off. The unit will remain in this mode until the POWER button is pressed again. To fully deactivate (i.e. power down) the unit, turn off the power switch on the back panel.
- **MUTE —** This button mutes the subwoofer's output. The LED on the sub will show 00 if the unit is muted. To unmute the subwoofer, press the MUTE button again and the original volume setting shows on the LED.
- **EQ —** This button automatically equalizes the subwoofer's output so that it sounds best for its position in the room. To use this feature, ***remove the grille*** and plug the supplied microphone into the Mic-In jack on the front baffle of the sub and place the mic in your preferred listening position. Then press EQ on the remote for about 2-3 seconds. The subwoofer emits 12 "sweep tones" that span the frequencies between 20 and 150 Hz. The LED displays "AU" during the Auto-EQ process. After the sweeps are complete, the unit saves its EQ settings and returns to normal operation. To prevent accidental invocation of the EQ feature, you must hold down the EQ button for 2-3 seconds before the EQ sweeps begin. If the mic is not plugged in, the subwoofer sweeps twice then reverts back to normal functioning without changing any EQ settings.
- **PHASE —** These buttons allow you to optimize the subwoofer's bass performance relative to the speakers and your listening position. Play some bass heavy music. While listening, push one of the four phase buttons, listen for a few moments, and then press the next phase button. In most installations, one of the four button positions will offer an audibly better blend of subwoofer and speakers. The LED will show the phase selected by showing "PH" followed by the phase number: 0, 90, 180 or 270.

- **LIGHT —** If you wish, you can deactivate the numeric LED on your DEQ-R subwoofer by pressing the LIGHT button on your remote. To reactivate the LED, press the LIGHT button again. When the display has been deactivated, it will light only when you make adjustments to the subwoofer controls and then turn off again.

- **NIGHT —** Night mode limits the maximum dynamic output of the subwoofer for late night listening or to be more considerate of close neighbors. Press the night button to turn the night mode feature on or off. Activation of night mode causes "n" to appear briefly on the display. When night mode is deactivated, the display shows "n off" and then returns to normal function.

- **VOLUME CONTROL —** This control allows you to balance the output from the subwoofer to the main speakers in your system. This control should be set to achieve similar volume level of both the main speakers and subwoofer. When pressing volume up or down, the volume level is shown on the numeric LED on the front panel.

WARNING: *Some manufacturers preset their receivers with the Sub-Out channel signal at a minimum level. It is very important to verify that your receiver Sub-Out channel is set to the same output level as your front right and left channels. Refer to your receiver manual for the individual channel level adjustment procedure. If your receiver Sub-Out channel is set too low, the subwoofer may appear to have a weak output, it may sound noisy or distorted, and the Auto On/Off feature may not operate properly.*

Note: The volume can also be adjusted via the buttons on the back panel of the subwoofer. These buttons have the same effect as pressing the up and down volume buttons on your remote. The unit comes preset from the factory with the volume set at 30 out of 80.

- **PRESETS —** There are four listening presets, consisting of Movies, R&B – Rock, Jazz – Classical, and Games. The presets provide the following characteristics for bass reproduction:

Movies:	Maximum output and impact for explosions and other action adventure movie content.
R&B – Rock:	Provides the driving bass found in today's rock music.
Jazz – Classical:	The tightest, cleanest, lowest distortion bass. The flattest frequency response of the four presets.
Games:	Maximum loudness available for the impact of video games.

The following table indicates musical style and which preset is recommended for it.

MUSICAL STYLE	SUGGESTED PRESET
Action Adventure Movies	Movies
Country – Rock	R&B – Rock
Country – Soft	Jazz – Classical
Folk	Jazz – Classical
Indie Music	R&B – Rock
Pop	R&B – Rock
Rock	R&B – Rock
Alternative Rock	Jazz – Classical
Blues	Jazz – Classical
Broadway and Vocalists	Jazz – Classical
Children's Music	Jazz – Classical
Christian and Gospel	Jazz – Classical
Classic Rock	R&B – Rock
Classical	Jazz – Classical
Dance and DJ	R&B – Rock
Hard Rock/Heavy Metal	R&B – Rock
Latin Music	R&B – Rock
Miscellaneous	Jazz – Classical
Movies – Non-Action Adventure	Jazz – Classical
New Age	Jazz – Classical
Opera and Vocal	Jazz – Classical
R&B	R&B – Rock
Rap and Hip-Hop	R&B – Rock
Soundtracks	R&B – Rock or Jazz – Classical
Video Games	Games

Each preset has its own characteristics with respect to subsonic filter, volume differential and a equalization (EQ) in order to optimize the listening mode for the preset.

The following table shows the settings for the various presets:

Preset	Subsonic Filter Frequency	EQ Frequency	EQ Level	Volume Differential
Movies	25 Hz	37 Hz	+3 dB	+5 dB
R&B - Rock	28 Hz	50 Hz	+3 dB	+1 dB
Jazz - Classical (Reference)	15 Hz	N/A	N/A	N/A
Games	34 Hz	60	+3 dB	+4 dB

Restoring Defaults

There is a feature that allows you to restore default settings for your DEQ-R subwoofer. By pressing presets in EXACTLY the following order on the remote, the unit will restore its default settings.

Preset 1: Movies
Preset 2: R&B – Rock
Preset 3: Jazz – Classical
Preset 4: Games
Preset 4: Games
Preset 3: Jazz – Classical
Preset 2: R&B – Rock
Preset 1: Movies

When you press the presets in the above order, the front LED will display "P3" indicating that you have restored defaults. The unit's volume is reset to level 30 out of 80.

Care of Your Subwoofer

Your Velodyne subwoofer does not require any regular maintenance. Normal dusting or cleaning of the surface for appearance purposes is all that is required. We suggest you avoid any harsh detergents or chemicals when cleaning the cabinet. Abrasives, detergents, or cleaning solutions may damage the finish on the cabinet. We recommend using only a damp cloth to clean the cabinet.

During normal conditions, your new subwoofer may be left on continuously without any problems. Using the Auto on/off function, the unit will automatically turn on the unit when a signal is present at the inputs and turn off after several minutes when there is no longer any signal at the inputs.

Protection Circuitry

Your new subwoofer is equipped with circuitry to provide maximum performance with greatest reliability.

The unit is protected against:
1) Overheating the amplifier.
2) Excessive drop in power line voltage.

If either of the above should happen, you should reduce the volume setting or shut the unit off until normal operating conditions return. You may also want to plug the unit into a different wall outlet, as dropping power line voltage will be most noticeable under strenuous conditions and may result in the unit shutting down intermittently.

Troubleshooting and Service

Before seeking service for your amplifier or subwoofer, please re-check all systems. Following is a simple troubleshooting guide to assist you.

1. Verify that the unit is plugged in and power outlet used is active.
2. Is the power switch on?
3. Is the unit receiving an input signal from your source?
4. Have all controls (volume, crossover, phase, etc.) been properly set?
5. If the unit has been running at high levels, one of the protection circuits may be engaged. Has the amplifier overheated?
6. Has the power button been depressed on the remote?
7. Make sure binding posts are tightened.
8. Is the remote non-responsive? We recommend replacing the batteries in the remote.

If the protection circuitry is active, the unit may cycle on and off until operating parameters return to normal. Under more serious conditions, the unit may shut off completely. Normal operation should return upon cooling, but you may be required to turn the power off and then on again to reset the unit.

The following conditions require service by a qualified technician:

1. The power cord has become damaged
2. The unit does not appear to operate normally or exhibits a marked change in performance
3. The unit has been exposed to water
4. Some part of the chassis or circuitry is physically damaged

Thank You for Purchasing a Velodyne!

SPECIFICATIONS

MODEL	DEQ-8R	DEQ-10R	DEQ-12R	DEQ-15R
Woofer	8" (20.3 cm) forward firing (6.3" piston diameter)	10" (24.5 cm) forward firing (8.2" piston diameter)	12" (30.5 cm) forward firing (9.7" piston diameter)	15" (38 cm) forward firing (12.7" piston diameter)
Amplifier: Class D	360 watts Dynamic/ 180 watts RMS Power	390 watts Dynamic/ 195 watts RMS Power	450 watts Dynamic/ 225 watts RMS Power	1500 watts Dynamic/ 750 watts RMS Power
Cabinet Design	Extended Excursion Slot-Loaded Bass-Reflex	Extended Excursion Slot-Loaded Bass-Reflex	Extended Excursion Slot-Loaded Bass-Reflex	Extended Excursion Slot-Loaded Bass-Reflex
Frequency Response Overall (+/-3 dB)	17 - 240 Hz 32 - 120 Hz	16 - 240 Hz 28 - 120 Hz	14.6 - 240 Hz 25 - 120 Hz	14 - 240 Hz 23 - 120 Hz
Voice Coil	2-Layer copper	2-Layer copper	2-Layer copper	2.5" 4-Layer copper
Cone	Reinforced fiber	Reinforced fiber	Reinforced fiber	Reinforced fiber
Magnet	2.5 lbs	2.5 lbs	3.5 lbs	4.4 lbs
High-Pass Crossover	Fixed at 120 Hz high-pass	Fixed at 120 Hz high-pass	Fixed at 120 Hz high-pass	Fixed at 120 Hz high-pass
Low-Pass Crossover	40 - 120 Hz adjustable (12 dB octave, 24 dB ultimate)	40 - 120 Hz adjustable (12 dB octave, 24 dB ultimate)	40 - 120 Hz adjustable (12 dB octave, 24 dB ultimate)	40 - 120 Hz adjustable (12 dB octave, 24 dB ultimate)
Outputs	Line-level	Line-level	Line-level	Line-level
Inputs	Gold plated line-level	Gold plated line-level	Gold plated line-level	Gold plated line-level
Digital Phase	0, 90, 180, 270 degrees	0, 90, 180, 270 degrees	0, 90, 180, 270 degrees	0, 90, 180, 270 degrees
Auto On/Off	Yes	Yes	Yes	Yes
Removable Grill	Yes	Yes	Yes	Yes
Video Shielding	No	No	No	No
LED Display	Yes	Yes	Yes	Yes
Accessories	Mic, mic stand, remote control	Mic, mic stand, remote control	Mic, mic stand, remote control	Mic, mic stand, remote control
Cabinet (H,W,D) (cm) with grille	15.5" x 12" x 15.5" (39.4 x 30.5 x 39.4 cm)	16.5" x 15" x 17.6" (42 x 38 x 44.7 cm)	18.5" x 15" x 18.8" (47 x 38 x 47.8 cm)	21.5" x 18.4" x 20.6" (54.6 x 46.7 x 52.3 cm)
Warranty (parts/labor) (North America)	Three years (electronics) Five years (drivers)	Three years (electronics) Five years (drivers)	Three years (electronics) Five years (drivers)	Three years (electronics) Five years (drivers)
Shipping Weight (approx.)	44 lbs. (20 Kg)	55 lbs. (25 Kg)	61 lbs. (28 Kg)	75 lbs. (34 Kg)

Specifications are subject to change without notice.

Velodyne Products

115 - 120V

DD® Series
DD-10
DD-12
DD-15
DD-18
Digital Drive 1812 Signature Edition

DEQ-R Series
DEQ-8R
DEQ-10R
DEQ-12R
DEQ-15R

DLS™-R Series
DLS-3500R
DLS-3750R
DLS-4000R
DLS-5000R

Impact Series
Impact-Mini
Impact-10
Impact-12

MicroVee™

MiniVee®
MiniVee® 10

Optimum Series
Optimum-8
Optimum-10
Optimum-12

SMS™-1

SubContractor™ Series
SC-1250
SC-10
SC-12
SC-15
SC-IW
SC-IF/IC
SC-600 Amp
SC-602 Amp
SC-600 IW
SC-600 IF/IC

VX-11

220 - 240V

DD® Series
DD-10
DD-12
DD-15
DD-18
Digital Drive 1812 Signature Edition

CHT-Q Series
CHT-8Q
CHT-10Q
CHT-12Q
CHT-15Q

Impact Series
Impact-Mini
Impact-10
Impact-12

MicroVee™

SMS™-1

SPLi Series
SPL-800i
SPL-1000i

SPL-Ultra Series
SPL-800 Ultra
SPL-1000 Ultra
SPL-1200 Ultra

SubContractor™ Series
SC-1250
SC-10
SC-12
SC-15
SC-IW
SC-IF/IC
SC-600 Amp
SC-602 Amp
SC-600 IW
SC-600 IF/IC

FOR YOUR RECORDS. . .

Date Purchased_____

Dealer_____

Serial #_____

**NOTE: Please complete and return your warranty card within ten (10) days or*

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LIMITED WARRANTY - U.S. AND CANADA ONLY

VELODYNE ACOUSTICS, Inc. ("VELODYNE") warrants all electronics for a period of three years, drivers for a period of five years, and full range speakers for a period of five years. All VELODYNE products have a warranty from the date of purchase against defects in materials and workmanship subject to the following conditions:

1. VELODYNE is not responsible for defects which result from the use of an amplifier or controller other than the one originally supplied with the unit (subwoofer) or defects which result from modifications or repairs made by any component of the system by anyone other than a VELODYNE factory authorized service representative.
2. This warranty is void if any repairs or service covered by the terms of this warranty are made to any component of the system by anyone other than a VELODYNE factory authorized service representative.
3. VELODYNE is not responsible for damage caused by accidents, abuse, misuse, natural or personal disaster or unauthorized modification. The VELODYNE products are not intended for professional or commercial use and VELODYNE is not responsible for damage resulting from such use.
4. The VELODYNE product warranty is limited to units that are purchased from authorized VELODYNE dealers and finalized within authorized dealer locations.
5. This warranty is nontransferable under any condition.
6. Use of this product outside the U.S. and Canada voids this warranty.

TO OBTAIN SERVICE

Information regarding service may be obtained from the dealer from whom you purchased the unit, or by contacting VELODYNE customer service. Warranty service must be performed by a VELODYNE factory authorized service representative within the warranty period set forth above. If VELODYNE determines the unit is defective, VELODYNE will, at VELODYNE's option, repair or replace the product at no charge if the product is forwarded prepaid to a factory authorized service representative. Products forwarded to the factory authorized service representative should be shipped securely and properly packaged, insured and freight prepaid.

WARRANTY OUTSIDE THE UNITED STATES AND CANADA

The Warranty of this product if it is sold to a consumer outside of the United States or Canada shall comply with applicable law and shall be the sole responsibility of the distributor that supplied this product. To obtain any applicable warranty service, please contact the dealer from which you purchased this product, or the distributor that supplied this product.

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